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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/697,240	10/31/2003	Satoshi Arakawa	Q78212	9031
23373	7590	06/15/2007		
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			EXAMINER TORRES, JOSE	
			ART UNIT 2624	PAPER NUMBER
			MAIL DATE 06/15/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/697,240	Applicant(s) ARAKAWA, SATOSHI	
	Examiner Jose M. Torres	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 May 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Comments

1. The Amendment filed on May 24, 2007 has been entered and made of record.

Claim Objections

2. Claims 4 and 12 are objected to because of the following informalities:
 - Claim 4 is objected to as being a duplicate of claim 3.
 - Claim 12 lines 1-2: "wherein the information at least one of information"
should be -- wherein the information is at least one of information --

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 3-6 and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Small et al. ("Validation of a 3D Optoelectronic motion analysis system for the wrist joint" CLINICAL BIOMECHANICS, Butterworth Scientific LTD,

Art Unit: 2624

Guilford, GB, vol. 11, no. 8, December 1, 1996, pages 481-483) in view of Wang (US 2002/0076091).

Small et al. teaches a diagnostic imaging apparatus (Abstract, Page 481) comprising: a position-of-interest determination unit which determines a plurality of positions in a plurality of images of a predetermined part of an object which are taken during movement of the predetermined part, to be positions of interest in the plurality of images, where the plurality of positions in the plurality of images correspond to a predetermined position in the predetermined part (Methods, "portable X-ray unit", Page 481 Col. 2 line 9 through Page 482 Col. 1 line 11); and a characteristic-quantity calculation unit (Methods, "software") line which calculates a characteristic quantity ("Euler angle") indicating a positional relationship between the position of interest in the plurality of images (Methods, Page 482 Col. 1 line 12 through Col. 2 line 13).

As to claim 1, Small et al. does not explicitly disclose an automatic diagnosis unit which outputs information on said predetermined part of said object, based on said characteristic quantity.

Wang teaches an automatic diagnosis unit (FIG. 1, "abnormal feature extraction sub-stage 51") which outputs information on said predetermined part of said object, based on said characteristic quantity (Paragraph [0021]).

Therefore, in view of Wang, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Small et al.'s apparatus by incorporating the abnormal feature extraction sub-stage, as taught by Wang, which outputs the features of the abnormalities based on the information supplied in order to

provide additional aid to radiologists, radiologic technicians, or other users, to recommend a course of further action (Paragraphs [0006] and [0014]).

As to claims 3 and 4, Small et al. further teaches said predetermined part is a joint of a human body (Abstract, Page 481).

As to claim 5, Small et al. further teaches said plurality of images are a plurality of radiographic images which are taken by applying radiation to said predetermined part during movement of the predetermined part (Abstract, "two hand postures", Page 481 and Methods; Page 481 Col. 2 line 9 through Page 482 Col. 1 line 11).

As to claim 6, Small et al. further teaches a marker (Methods, "Surface markers") is attached to said predetermined part, said plurality of images are a plurality of radiographic images, and said position-of-interest determination unit determines positions of interest of said marker, and said position-of-interest determination unit determines positions of images of said marker to be said position of interest, where said images of the marker are respectively formed in said plurality of radiographic images by radiation which has passed through the marker (Methods, Page 481 Col. 2 line 9 through Page 482 Col. 2 line 11).

As to claims 10 and 11, Small et al. further teaches the diagnostic imaging apparatus is an automatic diagnostic imaging apparatus/radiographic imaging

Art Unit: 2624

apparatus (Methods, "X-ray unit", Page 481 Col. 2 line 9 through Page 482 Col. 1 line 30).

As to claim 12, Wang further teaches the information is at least one of information indicating whether the predetermined part is normal, information indicating a degree of abnormality of the predetermined part ("probability of abnormality"), and the characteristic quantity (Paragraph [0021]).

5. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Small et al. in view of Wang as applied to claims 5 and 6 above, and further in view of Kido et al. (US 5,732,149). The teachings of Small et al. modified by Wang have been discussed above.

As to claims 7 and 8, Small et al. modified by Wang fails to teach said plurality of radiographic images are taken by using a solid-state radiation detector which generates and stores electric charges when the solid-state radiation detector is irradiated with radiation.

Kido et al. teaches said plurality of radiographic images are taken by using a solid-state radiation detector (FIG. 4, "radiation image conversion panel 4") which generates and stores electric charges when the solid-state radiation detector is irradiated with radiation (Col. 7 lines 5-26).

Therefore, in view of Kido et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Small et al. and

Art Unit: 2624

Wang by incorporating the radiation image conversion panel, as taught by Kido et al., which accumulates energy when irradiated with radioactive rays in order to provide an enhancement in image extraction and create a latent image of the part of the human body exposed to radiation (Col. 6 lines 1-4 and Col. 7 lines 15-26).

6. Claims 9 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Small et al. as applied to claim 1 above, and further in view of Lang et al. (US 7,184,814). The teachings of Small et al. modified by Wang have been discussed above.

As to claims 9 and 13, Small et al. modified by Wang fails to teach at least three images are taken during the movement of the predetermined part, and wherein the plurality of images of the predetermined part of the object are taken during movement through at least three positions of the predetermined part.

Lang et al. teaches at least three images are taken during the movement of the predetermined part, and wherein the plurality of images of the predetermined part of the object are taken during movement through at least three positions of the predetermined part (It should be noted that since the images are taken when there is no motion and when the subject is moving, there is at least three images/positions taken. FIG. 1, "step 32", Col. 14 lines 15-28 and Col. 20 line 41 through Col. 21 line 10).

Therefore, in view of Lang et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Small et al. and Wang by incorporating an imaging sequence of at least three images/positions during

Art Unit: 2624

movement of the part, as taught by Lang et al., in order to provide a visual indication of potential or actual cartilage defects and help in determining their relation between movement and degeneration (Col. 14 lines 39-44).

Response to Arguments

Formal Matters

7. Acknowledge is made of the receipt of the certified copy of the priority document submitted on October 31, 2003 which contains Japanese Patent Application No. JP2002-317609.

Objections to the Drawings

8. Applicant arguments with respect to the Drawing Objection made on FIG. 2A reference character "a" have been fully considered. Examiner agrees with Applicant, that in fact Reference Character "a" refers to the portion illustrated in FIG. 2B as indicated in Page 8 line 16. Therefore, the objection has been removed.

Claim Rejection

9. Applicant's arguments with respect to claims 1-13 filed on May 24, 2007 have been fully considered but they are not persuasive.

Applicant argues that Small et al. is concerned with test measurements, and verifying the accuracy and correlation among various measurement methods and that

Small does not consider issues of diagnosis, as stated in Page 7 lines 1-3 of the Amendment.

However, in response to Applicant's arguments, Examiner would like to point out that Small et al. does indeed consider diagnosis issues. In Small et al. Page 483 Col. 1 lines 32-41, "a detection of a change in the range of motion greater than 6 degrees is significant to the wrist", the determination of this type of change in motion range is a diagnosis performed on the patient. Further in re KSR International Co. v. Teleflex Inc. et al. 550 US 2007, at page 17: "A person of ordinary skill is also a person of ordinary creativity, not an automaton. ... When there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known option within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense. In that instance the fact that a combination was obvious show that it was obvious under § 103."

Applicant further alleges that merely because a feature extraction sub-stage may be known in the art does not provide a rationale for modifying Small's experimental correlation of various measurements, as stated in Page 7 lines 4-12 of the Amendment, and that Small provides no indication of how an Euler angle would be used to produce any probability of diagnosis.

As stated above, a change in the range of motion which is greater than 6 degrees is significant to the wrist. Therefore, a person of ordinary skill in the art, which is also a person of ordinary creativity, would find obvious to use an automated diagnosis

unit that provides diagnosis output (which is commonly known to the skilled person), in combination with an imaging system which measures the extent of motion of a predetermined part (human joint) to output this kind of information (Significant change in range of motion) in order to provide additional aid to physicians on further treatment.

Therefore, the rejections are maintained.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Arme, Jr. disclose a Method and Apparatus for Analysis of Postural Abnormalities, and Marmer disclose a Functional Capacity Assessment System and Method.

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

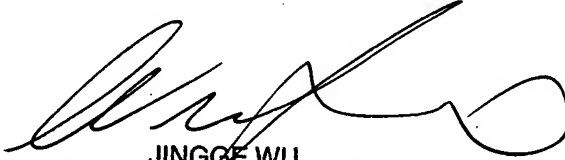
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jose M. Torres whose telephone number is 571-270-1356. The examiner can normally be reached on Monday thru Friday: 8:00am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jingge Wu can be reached on 571-272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JMT
06/07/2007



JINGGE WU
SUPERVISORY PATENT EXAMINER